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10/686,772	10/17/2003	Toyohiko Mitsuzawa	Q77942	7752

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EXAMINER	
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2861	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/686,772	MITSUZAWA, TOYOHIKO	
	Examiner	Art Unit	
	SHELBY FIDLER	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *6,14* is/are allowed.

6)☒ Claim(s) *1-5,7-13 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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DETAILED ACTION

Responsive Office Action

This Office Action is responsive to the remarks and amendments filed 1/4/2008.

Claim Objections

Claim 7 is objected to because of the following informalities: please add a colon to the end of line 4 of this claim, to place the claim in proper sentence format. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Otsuka (US 6682171 B2).

Regarding claim 1:

Otsuka discloses a printing apparatus comprising:

a plurality of print heads (head groups 48 – Fig. 6);

a moving member (support bracket 41) that can be moved along a main-scanning direction (col. 7, lines 23-36) and that is provided with the plurality of print heads (Figs. 1 & 6);

a feed mechanism (take-up motor 96) for feeding a medium to be printed (col. 10, lines 59-66); and

a drive member (X-axis stage 27) that is connected to the moving member at a connecting section (point of connection shown in Figs. 1 & 3) and that is for driving the moving member along the main-scanning direction (col. 6, lines 44-46), and

wherein a predetermined print head (head group 48-4) is a print head other than the print head that is furthest away from the connecting section in a direction perpendicular to the main-scanning direction, among the plurality of print heads (Figs. 3 & 6).

Otsuka does not expressly disclose that dots for correcting a feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed by ejecting ink from a predetermined print head, among the plurality of print heads, while moving the moving member.

However, these limitations are recitations of intended use of the claimed printing apparatus. Examiner notes that Otsuka discloses all the structural aspects of the claimed printing apparatus, and that Otsuka's printing apparatus is capable of performing these limitations. To achieve complete patentable weight, Examiner recommends incorporating additional claim language that incorporates either a controller configured to perform the above mentioned limitations, or means plus function language.

Regarding claim 16:

Otsuka discloses all the patentable limitations of claim 1, and **Otsuka also discloses** that each of the plurality of print heads (48) has a black nozzle row, a cyan nozzle row, a magenta nozzle row, and a yellow nozzle row (Fig. 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 8-13, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 2002/0140794 A1) in view of Kojima (US 6905186 B2).

Regarding claim 1:

Asano et al. disclose a printing apparatus comprising:

a plurality of print heads (heads 904);

a moving member (carriage 902) that can be moved along a main-scanning direction (paragraph 72) and that is provided with the plurality of print heads (Fig. 9B);

a feed mechanism (Y-axis motor 909) for feeding a medium to be printed (paragraph 72); and

a drive member (timing belt 907) that is connected to the moving member at a connecting section (paragraph 72 & Figs. 9) and that is for driving the moving member along the main-scanning direction (paragraph 72), and

wherein a predetermined print head (e.g. cyan head 902C or black head 902K) is a print head other than the print head that is furthest away from the connecting section in a direction perpendicular to the main-scanning direction, among the plurality of print heads (Fig. 9B).

Asano et al. do not expressly disclose that dots for correcting a feed amount by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed by ejecting ink from a predetermined print head, among the plurality of print heads, while moving the moving member.

However, these limitations are recitations of intended use of the claimed printing apparatus. Examiner notes that Asano et al. disclose all the structural aspects of the claimed printing apparatus, and that Asano et al.'s printing apparatus is capable of performing these limitations. To achieve complete patentable weight, Examiner recommends incorporating additional claim language that incorporates either a controller configured to perform the above mentioned limitations, or means plus function language.

Further, Kojima disclose a printing apparatus in which dots (check lines), for correcting a feed amount by which a feed mechanism (pulse motor 17) feeds a medium, are formed on a medium by ejecting cyan ink from a print head (cyan nozzle line of head 15 - col. 5, lines 53-56) while moving the moving member (col. 5, lines 25-37).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize Asano et al.'s print heads for printing dots for correcting a feed amount, such as disclosed by Kojima. One motivation for doing so, as taught by Kojima, is to reduce deviation in the feeding distance (col. 1, lines 56-60).

Regarding claim 2:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Asano et al. also disclose** that the predetermined print head (e.g. 902C) is the print head, among the plurality of print heads, that is the least susceptible to vibrations caused by moving the moving member (Fig. 9B).

Regarding claim 3:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Asano et al. also disclose** that the predetermined print head (e.g. 902C) is the print head that is located the closest to a connecting section at which the moving member and the drive member are connected to each other (Fig. 9B).

Regarding claim 4:

Asano et al. as modified by Kojima disclose all the limitations of claim 3, and **Kojima also discloses** that the dots for correcting the feed amount (check lines) by which the feed mechanism feeds the medium to be printed are formed on edge sections of the medium (col. 5, lines 6-20, 25-28) by ejecting cyan ink from a print head (col. 5, lines 53-56) while moving the moving member (col. 5, lines 25-37).

Regarding claim 5:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Kojima also discloses** that the dots for correcting the feed amount (check lines) by which the feed mechanism feeds the medium to be printed are formed on the medium to be printed by ejecting ink from predetermined nozzles provided in the predetermined print head (col. 5, lines 33-37).

Regarding claim 8:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Kojima also discloses** that the dots for correcting the feed amount are formed on the medium when power is supplied to the printing apparatus (col. 9, line 67 – col. 10, line 1).

Regarding claim 9:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Kojima also discloses** that the dots for correcting the feed amount are formed on the medium during a printing operation of the printing apparatus (col. 10, lines 1-3).

Regarding claim 10:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Kojima also discloses** that the dots for correcting the feed amount are formed on the medium when the medium has been exchanged (col. 10, lines 7-11).

Regarding claims 11 and 15:

Asano et al. as modified by Kojima disclose all the limitations of claim 10, and **Kojima also discloses** that the printing apparatus comprises:

a detector for detecting whether or not the medium has been exchanged (col. 10, lines 7-9);

wherein, when it has been detected by the detector that the medium has been exchanged, the dots for correcting the feed amount are formed on the medium (col. 10, lines 9-13).

Regarding claim 12:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Kojima also discloses** that the dots for correcting the feed amount are formed on the medium when a

print mode of the printing apparatus has been changed (changed to test print mode - col. 4, lines 45-46, 52-61).

Regarding claim 13:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Kojima also discloses** that at least two correction amounts for correcting the feed amount are obtained based on the dots formed on the medium (col. 5, lines 38-45), and

based on an average value of the correction amounts that are obtained, the feed amount is corrected (col. 5, lines 45-52).

Regarding claim 17:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, and **Asano et al. also disclose** that the driving member (907) extends along the moving member (902) in the main scanning direction (Fig. 9B).

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. as modified by Kojima, as applied to claim 1 above, and further in view of Takemura et al. (US 5988784).

Regarding claim 7:

Asano et al. as modified by Kojima disclose all the limitations of claim 1, but **Asano et al. as modified by Kojima does not expressly disclose** that whether or not dots for correcting the feed amount should be formed is determined according to a value of the temperature around the printing apparatus.

However, Takemura et al. disclose that a decision of whether or not to form dots for correcting a feed amount is made according to a value of a temperature around the printing apparatus (col. 15, lines 25-37).

Therefore, at the time of invention, it would have been obvious to a person of ordinary skill in the art to utilize a decision of whether or not to form dots for correcting a feed amount, such as disclosed by Takemura et al., into the invention of Asano et al. as modified by Kojima. One motivation for doing so, as taught by Takemura et al., is to account for changes in speed of conveyance that occur with a change in environmental conditions (col. 17, lines 1-13).

Allowable Subject Matter

Claims 6 and 14 are allowed.

Please see Office Action dated 11/16/2006 concerning reasons for allowance.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. Please see the above anticipation rejection based on the disclosure provided by Otsuka, and the above obviousness-type rejection based on the disclosures provided by Asano et al. and Kojima. These rejections both disclose a printing apparatus having a drive member that is connected to a moving member at a connecting section, and a predetermined print head that is a print head other than the print head that is the furthest away from the connecting section in a direction perpendicular to the main-scanning direction.

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Communication with the USPTO

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHELBY FIDLER whose telephone number is (571)272-8455. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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